Pacific Gas and Electric

2010-2012 ENERGY EFFICIENCY PORTFOLIO

Program Year 2012
Pilot Program Target Updates

Submitted June 3, 2013

PACIFIC GAS AND ELECTRIC COMPANY

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ZERO NET ENERGY – PGE2112

The Zero Net Energy (ZNE) Pilot Program is a Pacific Gas and Electric Company (PG&E) specific local non-resource program that supports the Strategic Plan by initiating research development, and demonstration (RD&D) projects that have aggressive energy efficiency goals and that plan to include on-site clean distributed generation. The ZNE Pilot Program focuses primarily on residential and commercial new construction. An update for program year 2012 for each of the program's four subprograms is provided below. The ZNE Pilot Program ended at the close of 2012, but many program activities have been incorporated into ongoing EE programs for 2013-2014.

The program budget and targets were revised in 2012 as detailed in PG&E's Advice Letter 3235-G-A/3901-E-A and approved by disposition letter dated February 14, 2012. These revised targets are reflected in the updates provided below.

1) ZNE Communities Subprogram

ZNE-1a*. Consultation to at least 3 project teams*

PG&E issued a Request For Proposals (RFP) to teams to deliver design and technical assistance on November 1, 2010. PG&E closed the RFP on December 2, 2010. The RFP requested that teams note the category of project for which they had the expertise to provide design and technical assistance – community-scale projects, commercial projects, and/or residential projects. Teams could apply in more than one category.

In 2011, the ZNE team reviewed proposals from the teams of firms with expertise in the design and performance analysis of low energy and zero net energy projects and selected a total of eight teams representing expertise in the three design and technical assistance construction types. In January, 2011, the ZNE Pilot Program posted a Request for Ideas (RFI) for the competitive selection of community-scale, commercial, and residential projects with aggressive energy efficiency and zero net energy performance goals. The program chose to move forward with four projects total (including community-scale, commercial, and residential), matched them with the "ZNE Consultant" teams selected, and began to scope the design and technical assistance to be provided to each project.

In February 2012, a second RFI was issued to solicit additional project teams in need of expert zero net energy design and technical consultation. An additional six projects were added for consultation assistance in 2012, bringing the total number of ZNE Pilot Program consultations to ten (including community-scale, commercial and residential projects).

ZNE-1b. *EM&V on projects selected.*
As approved in Advice 3235-G-A/3901-E-A, there is no target for this element. No projects selected for consultation were suitable for EM&V prior to the end of the 2010-2012 cycle.

ZNE-1c. *Quarterly coordination meetings*

A coordination meeting of the external advisory committee and PG&E staff was held at the PG&E Pacific Energy Center on October 29, 2010.

Ongoing champion meetings were held as needed. No further meetings of the external advisory committee were held in 2011 or 2012, as indicated in Advice 3235-G-A/3901-E-A, which removed this target.

ZNE-1d. *Integration with resource programs; report*
ZNE Pilot Program worked with Emerging Technologies, Codes & Standards, Savings by Design, California Advanced Homes Program, and other resource programs to coordinate technology assessments research efforts, and the delivery of consultations to projects.

2) <u>ZNE Demonstration Showcase Subprogram</u>

ZNE-2a. *Design, technical and financial assistance to at least 4 residential buildings*

See ZNE-1a, above, for progress towards this metric. The consultation specifications, selection of service providers, and solicitation of projects for 1.a, 2.a and 2.b were done with a single process.

ZNE-2b. *Design, technical and financial assistance to at least 2 commercial buildings*

See ZNE-1a, above, for progress towards this metric. The consultation specifications, selection of service providers, and solicitation of projects for 1.a, 2.a and 2.b were done with a single process.

ZNE-2c. *Technology studies on at least 4 advanced technical areas under-represented in ZNE areas*

In 2010, the ZNE Pilot Program identified five preliminary technical areas under-represented in zero net energy policy and research for technology studies and has drafted problem statements.

In 2011, the ZNE Pilot Program established work statements for four technical areas under-represented in zero net energy policy and research including 1) an exploration of DC systems for ZNE, 2) District systems for ZNE, 3) Incremental costs associated with ZNE for builders and/or homebuyers, and 4) Grid/utility impacts of distributed generation and NEM. The latter of these studies was under contract and began work in 2011.

In 2012, all four studies were completed. The finished studies and project teams are as follows:

Study Title: “DC Distribution Market, Benefits and Opportunities, Residential and Commercial Buildings”, Project Team: Ecova

Study Title: “District-Scale Energy Systems Analysis for Zero Net Energy Communities”, Project Team: Base Energy Inc.

Study Title: “California Zero Net Energy Buildings Cost Study”, Project Team: Davis Energy Group (DEG)

Study Title: “Net Energy Metering, Zero Net Energy and the Distributed Energy Resource Future”, Project Team: Rocky Mountain Institute (RMI)

A public presentation of the RMI study results was held by the PG&E ZNE Pilot Program at the David Brower Center in March of 2012.

ZNE-2d. *Resource web site on key information on projects and technologies*

In 2010, the ZNE Pilot Program established initial specifications for a program website and the website went live.

In 2011, the ZNE Pilot Program added information about several program activities, including the residential and non-residential ZNE workshop series, the forum held in June, and the Architecture at Zero 2011 design competition and competition winners.

Regular updates of the Program website with information on program activities, class series and the second Architecture at Zero competition continued throughout 2012.

3) ZNE Technology Advancement Subprogram

ZNE-3a. *Assessment of 5 technologies*

In 2010 the Zero Net Energy Technology Advancement Subprogram completed five technology assessments. The assessments are:

- Report #PGEZNE2010-01: Heat Pump Water Heater
- Report #PGEZNE2010-02: Evaporative Condenser
- Report #PGEZNE2010-03: Ground Coupled Heat Pump
- Report #PGEZNE2010-04: Electrochromic Windows
- Report #PGEZNE2010-05: Energy-Recovery Ventilators

No further technology assessments were completed in 2011 or 2012.

ZNE-3b*. Establish roadmap and market characterization by building type for ZNE*

In 2010, the ZNE Pilot Program worked with staff from the PG&E EM&V group to compose statements of work and initial timelines for the two major reports to be conducted in coordination with EM&V. The first statement of work was for a report that will be a roadmap to zero net energy residential and commercial new construction in California. The second statement of work was for a report that will be an assessment of the technical potential for achieving zero net energy buildings in the commercial and residential sectors in California. Both statements of work were shared with CPUC Energy Division and CPUC EM&V staff for review and comment at the end of 2010.

In 2011, the Zero Net Energy Technology Advancement subprogram worked with staff from the PG&E EM&V group to draft a Request for Proposals (RFP) for the report on the roadmap to zero net energy residential and commercial new construction in California and another RFP for the study to assess the technical potential for achieving zero net energy buildings in the commercial and residential sectors in California. The studies are being conducted in close coordination with CPUC EM&V staff, and the RFPs were reviewed by CPUC EM&V and ZNE staff before they were released. The project teams for each study were selected in coordination with other IOU EM&V staff, and contracts for each project team were in negotiation at the end of 2011. A team headed by Arup was selected for the study on the assessment of the technical potential, and a team headed by Heschong Mahone Group was selected for the roadmap study.

In 2012, the Zero Net Energy Technology Advancement subprogram worked with the project teams, PG&E EM&V staff, the CPUC and other IOU EM&V staff to complete these two large-scale studies. These studies will provide a foundation for further EM&V ZNE research and will be presented publicly by PG&E at the David Brower Center, Berkeley, in May of 2013.

4) ZNE Design Integration Subprogram

ZNE-4a. *Contribute to the creation of at least one community, planning, decision-making and code-review tool*

As approved in Advice 3235-G-A/3901-E-A, this target was removed.

ZNE-4b. *Coordination and facilitation of at least 2 forums of key ZNE players*

On June 30, 2011, the PG&E Zero Net Energy (ZNE) Pilot Program hosted over a hundred attendees at a forum on zero net energy, "Innovative Funding Mechanisms to Drive ZNE Projects in California," at the David Brower Center in Berkeley, CA. The forum consisted of three sessions in a panel format. Speakers included:

- Jeanne Clinton, Demand-Side Programs Branch Manager with the California Public Utilities Commission (CPUC)
- Panama Bartholomy – Deputy Director, Energy Efficiency and Renewables Division, California Energy Commission
- Nancy Wallace – Professor and Chair of the Real Estate Group, Co-Chair of the Fisher Center for Real Estate and Urban Economics, Haas School of Business, University of California, Berkeley
- Peter Morris – Director, Davis Langdon
- Saul Zambrano (Moderator) – Acting Senior Director, CES Customer Products, PG&E
- Paul Frankel – Managing Director, CalCEF Innovations, California Clean Energy Fund
- Mark Mitchell – Senior VP and General Manager, SeriousEnergy, Serious Materials
- Chris Pawlik – Founder and CEO, Energy-Producing Retail Realty
- Stephania Wong Kaneda – Principal, Chief Financial Officer, Integrated Design Associates, Inc.
- Steve Glenn – Founder and CEO, LivingHomes
- Jonathan Livingston (Moderator) – President, Livingston Energy Innovations, LLC

In September of 2012, the ZNE program held a second public on forum on key ZNE issues at the David Brower Center in Berkeley. The forum topic was "Zero Net Energy in Context: Achieving the ZNE Targets for California New Construction", and was moderated by Rick Diamond, Staff Scientist at the Lawrence Berkeley National Laboratory. Speakers and panelists included:

- Dave Mehl, Manager, Energy Section, California Air Resources Board
- Simon Baker, Program Manager, Energy Division, California Public Utilities Commission
- Martha Brook, Senior Mechanical Engineer, California Energy Commission
- Mike Keesee, Project Manager, Energy Research & Development, Sacramento Municipal Utility District
- Joe DiStefano, Principal, Calthorpe Associates
- Ann Edminster, Owner, Design AVEnues
- Henry Siegel, Principal, Siegel & Strain Architects

ZNE-4c. *Present at least 25 educational workshops on key ZNE topics*

During fall 2010, this Subprogram collaborated with staff from the PG&E Pacific Energy Center to develop a nine part non-residential zero net energy class series to be offered in collaboration with the San Francisco chapter of the American Institute for Architects (AIA SF) in spring 2011 The Subprogram also collaborated with staff from the PG&E Energy Training Center to develop a six part residential zero net energy class series to be offered in spring 2011.

In 2011, a total of 14 workshops were presented.

The "Zero Net Energy for Nonresidential Buildings Series" was offered at AIA SF (San Francisco):

- Improving Energy Performance Through Integrated Design, presenters include Scott Shell, AIA – EHDD, Peter Morris – Davis Langdon, Peter Rumsey – Integral Group
- Know Where You're Going – Setting Targets and Understanding Loads, presenters include Brad Jacobson, AIA – EHDD, Peter Rumsey – Integral Group
- Design with Climate – A Bioclimatic Approach to Architectural Regionalism, presenters include Bill Burke, AIA – Pacific Energy Center, Sam Jensen Augustine, Assoc. AIA – Pacific Energy Center, Scott Shell, AIA – EHDD
- Very High Performance Building Enclosures for Nonresidential Buildings, presenter John Straube - Building Science Corporation
- Doing It "Old School" – Passive and Near-Passive Design Approaches and Building Systems for Load and Demand Reduction
- Daylighting and Electric Lighting
- Simple, Robust, and Properly Sized: Victorian Engineering, Proper Equipment, and Controls for Super-Efficient Mechanical and Plumbing Systems, presenter Peter Rumsey – Integral Group

- Site Power: Renewable Energy, Solar Thermal, Co-Generation, & Grid-Supplied Renewable Energy, presenter Pete Shoemaker – Pacific Energy Center
- Creating a Culture of Sustainability Among Building Inhabitants, presenters include Scott Shell, AIA – EHDD, Brad Jacobson, AIA - EHDD

The residential series was offered at the ETC (Stockton), with lead instructors Ann Edminster, Design AVEnues, and Rick Chitwood:

- ZNE Homes Part 1 – Design Fundamentals
- ZNE Homes Part 2 – Integrated Planning
- ZNE Homes Part 3 – Enclosures and Assemblies
- ZNE Homes Part 4 – Mechanical Systems
- ZNE Homes Part 5 – Occupant factors
- ZNE Homes Part 6 – Renewable Power

In 2012, the "Zero Net Energy for Nonresidential Buildings Series" was redesigned in coordination with PG&E Pacific Energy Center (PEC) staff and offered at the PEC from early September to late October, 2012. The redesign targeted retention of attendees by fine-tuning the curricula to form a cohesive series rather than a group of "stand alone" lectures. The series culminated in a day-long "DesignShift" charette exercise led by Architectural Energy Corp. (AEC). Participants were encouraged to enroll for the entire series and received a certificate of completion at the end. Series topics and invited instructors included:

Session 1 – Ensuring Building Performance, Mara Baum, HOK

Session 2 – Building Science of Enclosures, Peter Yost, BuildingGreen

Session 3 – Daylighting for Net Zero Buildings, Prasad Vaidya, (formerly of) The Weidt Group

Session 4 – Conversational HVAC for Architects, Erin McConahey

Session 5 – Conversational Electric Lighting for Architects, David Orgish

Session 6 – Integrating Renewables, Jack West

Session 7 – The Big Picture: ZNE and the Grid, Virginia Lacy, Rocky Mountain Institute

Session 8 – "DesignShift" charette led by AEC

ZNE-4d. *Conduct at least 2 design competitions among the architectural and student communities*

In early 2011, the Zero Net Energy Pilot Program established a contract with the American Institute of Architects San Francisco chapter (AIA SF) to coordinate and manage the 2011 ZNE design competition. Using a real site in the City of Emeryville, the Architecture at Zero competition invited participants to present ZNE design solutions for redeveloping the site with multi-family residential and retail elements. The competition was open to students and design professionals from around the world. The 2011 competition jury included:

- Bob Berkebile, FAIA - Principal, BNIM Architects
- Lawrence Scarpa, FAIA - Principal, Brooks + Scarpa Architects
- Stephen Selkowitz - Building Technologies Department, Lawrence Berkeley National Laboratory
- Susan S. Szenasy - Editor in Chief, METROPOLIS magazine
- Allison G. Williams - Design Principal, Perkins+Will

The 2012 Architecture at Zero Competition challenge was to design a ZNE residential or administrative building for the UC Merced campus. UC Merced, the newest of the University of California campuses has aggressive energy efficiency and sustainability goals and features state of the art buildings. The Zero Net Energy Pilot Program collaborated again with the AIA San Francisco chapter to produce the competition and worked in close coordination with UC Merced officials and staff. The jury for the 2012 competition included:

- Edward Mazria, Founder, Architecture 2030
- Alison Kwok, Professor, University of Oregon
- Stephen Selkowitz, Program Head, Building Technologies,Lawrence Berkeley National Lab
- Susan Szenasy, Editor in Chief, METROPOLIS Magazine

The Architecture at Zero Competition will be running for a third time in 2013.

ZNE-4e. *Develop 2 best practice guidelines for the design, commissioning, operation and maintenance of ZNE buildings.* No activity was reported for 2011 related to this target.

In 2012, the ZNE Pilot Program contracted with Edward Dean, FAIA, a local architect and ZNE expert to complete case studies of three ZNE/ very high performance buildings, with a focus on technical performance, ongoing commissioning refinements and operations. These case studies will be published by PG&E in 2013.

ZNE-4f. *Investigate, via stakeholder meetings, white papers, or other methods, the development of at least 2 market based financing mechanisms to create Zero-Net development for residential and commercial buildings*

In 2010, the ZNE Pilot Program compiled a list of financing mechanisms. Research into these financing mechanisms prompted the topic of financing ZNE projects for the first forum (see ZNE - 4.b).

No activity to reported for 2011 related to this target.

In 2012, the ZNE Pilot Program applied to the Berkeley Energy Resource Collaborative (BERC) Innovative Solutions program (BIS), an initiative that matches multi-disciplinary U.C. Berkeley graduate students to real-world “clients”. The ZNE Pilot Program approached the BIS program with a problem statement related to exploring financial mechanisms that would assist and/or remove barriers for developers seeking to develop ZNE projects. The ZNE Pilot Program was matched with a group of four students who produced a short report in December 2012, based on their research and interviews.

GREEN COMMUNITIES (Local Government Program) – PGE21252

The Green Communities (GC) program was designed to provide data, tools, and training to local government customers to enable them to better understand and manage their municipal and community-wide energy usage in order to develop and implement climate action plans. PG&E's staff worked with many different non-government organizations (NGOs) and government organizations to provide the GC Program services and products. Major program activities described in Advice Letter 3082-G-A/3598-E-A, approved in March 2010, fall into the three sub-programs listed below:

Subprogram 1

Statewide Assistance for Local Governments (Statewide Program): PG&E, Southern California Edison (SCE), Southern California Gas (SCG), San Diego Gas and Electric (SDG&E) entered into co-funded contracts with ICLEI, the Institute for Local Government (ILG) and the Local Government Commission (LGC) to provide a coordinated statewide program of workshops, technical assistance, and other means to allow local governments to share best practices associated with energy management. This statewide program is called the Statewide Energy Efficiency Collaborative (SEEC). Work performed in this program is coordinated with the statewide local government energy efficiency best practices coordinator, Pat Stoner, whose contract is also co-funded by the four IOUs. The four contracts are described below. The major SEEC accomplishments specific to PG&E for the 2010-2012 program cycle were:

- In 2010, PG&E issued a contract with ICLEI to develop a set of tools and conduct a series of workshops and trainings for local governments about taking key steps to reduce GHG emissions including: conducting a local government operations inventory; conducting a community-scale inventory; developing an emissions reduction target; and developing and implementing a climate action plan.

  As of December 31, 2012, ICLEI had conducted 38 in-person or webinar workshops throughout the state and completed the 32 tools and/or guidance documents that are available at http://californiaseec.org/tools-guidance. In the third quarter of 2012, ICLEI also formalized an agreement with the California Air Resources Board and the Governor's Office of Planning and Research (OPR) to place SEEC resources prominently among state resources for local governments. ICLEI, OPR and ARB also agreed to engage in a long term strategic alliance in which all SEEC tools and resources are created in alignment with California state policy. Additionally, the duplication of tool development and other resources is being addressed directly in an attempt to avoid any duplication and create the most useful set of resources for California local governments.

- Other IOU Contracts: In 2010, SCE issued a contract with ILG to fund the Beacon Award, a program to recognize cities and counties for their greenhouse gas (GHG) emission reductions and energy savings. SDG&E issued two contracts with LGC to provide webinars, an annual statewide conference, and networking opportunities for local government partners regarding greenhouse gas reduction and energy efficiency best practices, and fund the statewide local government energy efficiency best practices coordinator.

  As of December 2012, 44 local governments were actively participating in the Beacon Award, 31 of whom were recognized for interim achievements; 15 webinars on best

practices and energy efficiency financing and three annual Statewide Energy Efficiency Best Practices Forums were offered through LGC.

Subprogram 2

Climate Planning Assistance for Local Governments (Climate Program): This sub-program provided funding, training, and energy usage data to local governments, regardless of whether they are part of a Local Government Partnership, to help them complete GHG inventories and climate action plans. Work performed in this sub-program was coordinated closely with the Local Government Partnerships to leverage LGP Strategic Plan Menu work with the Climate Program efforts. No specific metrics were defined for GHG inventory or climate plan development elements of this sub-program, but data, benchmarking and fluorescent lamp recycling metrics were defined and are noted below. The major Climate Program accomplishments through 2012 were:

- As of December 31, 2012, the Climate Program had completed 144 municipal operations GHG inventories and 88 community-wide inventories. One community-wide inventory and one municipal inventory remain in progress.

In addition, several of our government partners were in the process of completing energy portions of climate action plans for municipal and/or community-wide operations. Specifically, our partners completed 10 municipal climate action plans and 33 community-wide climate action plans related to energy in the third quarter of 2012 . An additional 24 community-wide climate action plans related to energy will continue to be developed into 2013. These plans are implemented through the following government partners: San Mateo County, Sonoma County, Association of Monterey Bay Area Governments, San Luis Obispo County Air Pollution Control District, Yolo County, Santa Clara County, Solano Transportation Authority, the City of American Canyon, the City of Davis, QuEST, Sierra Business Council, and Santa Barbara County.

Benchmarking Support: The Benchmarking element of Green Communities was completed in Q4 of 2011. ABAG trained 99 local government staff in 47 communities in seven counties within the nine-county ABAG area. Five local government staff from the North Coast area also received training.

Advice Letter (AL) 3082-G-A/3598-E-A includes 2 metrics for benchmarking. PG&E's Automated Benchmarking Service (ABS) uploads historical energy usage data into Energy Star Portfolio Manager (ESPM) and was used to monitor these metrics. At the end of each quarter, the cumulative list/number of ABAG jurisdictions and associated facilities were extracted from an ABS report. Those jurisdictions which had not previously used ABS and were listed for the first time in the report were compared against the list of jurisdictions that took the ABAG benchmarking training. It was assumed that there was a direct relationship between the workshops and ESPM registration for those jurisdictions that appeared on both lists, and those jurisdictions were counted toward the metric. Since the Green Communities program began offering benchmarking services in 2011, PG&E used ABS records through the end of 2010 as the baseline for these metrics.

Metric #1: Over the program cycle, the percentage of local governments in ABAG region participating in ESPM benchmarking increased by 20%.

Baseline: 29 jurisdictions (22 cities, 7 counties) were registered in ESPM via ABS as of the end of 2010. (Goal: 6 new jurisdictions by end of 2012).

Exceeded goal: 8 new jurisdictions that took the ABAG training were registered in ESPM as of Q3 2011.): At the end of Q3 2011, 48 jurisdictions (41 cities and 7 counties) in ABAG region were registered in ESPM via ABS which is an increase of 19 jurisdictions. Of the 19 additional cities, 8 (San Mateo, Napa, Yountville, Fremont, Pleasant Hill, Oakley, Union City and Sunnyvale) participated in ABAG's training.

Metric #2: Over the program cycle, increase % of LG facilities in ABAG region benchmarked with ESPM by 20%.

Baseline: 264 facilities (155 in cities, 109 in counties) were registered in ESPM via ABS at the end of 2010. (Goal: 53 new facilities by end of 2012).

Exceeded goal: 227 new facilities associated with governments that took the ABAG training were benchmarked as of Q3 2011): At end of Q3 2011, 877 facilities in ABAG region were registered in ESPM via ABS (753 in cities and 124 in counties), which is an increase of 613 facilities beyond the 2010 baseline of 264. 227 of these additional facilities were associated with the 42 ABAG communities that received the ABAG training.

Data tools: PG&E has collaborated with ICLEI to develop standardized reports to provide local governments with data on the GHG emissions associated with their electricity and natural gas use at the municipal level and aggregated non-customer specific data at the community-wide scale. PG&E also collaborated with local jurisdictions to develop more detailed residential and non-residential aggregate reports with data on zip code and NAICS codes. Through 2012, PG&E has provided inventory reports to 100 percent of cities and 100 percent of cities and more detailed reports to 30 percent of cities and 30 percent of counties, which meets the metrics for this Green Communities subprogram.

Advice Letter 3082-G-A/3598-E-A includes the following metrics for providing data to local governments over the 2010-2012 program cycle:

100% of cities in service area receive energy usage data for:
- municipal inventories
- community-wide inventories

100% of counties in service area receive energy usage data for:
- municipal inventories community-wide inventories
- 30% of cities in service area receive enhanced community-wide energy usage data by zip code or NAICS.
- 30% of counties in service area receive enhanced community-wide energy usage data by zip code or NAICS.

Subprogram 3

Fluorescent Lamp Recycling Program (FLR Program): This sub-program built on an earlier FLR pilot to develop a standard menu of marketing, education and outreach tools to be tested by a limited number of local governments to educate their residents about the necessity and options for appropriately recycling fluorescent lamps to protect public health and the environment. The menu of tested and refined tools was made available to local governments throughout the state via PG&E's website. Additionally, the FLR Program provided program resources to assist local governments with actual implementation of fluorescent lamp collection infrastructure, such as recycling kits. In 2010, the FLR Program activities focused on scoping and awarding a contract

with KEMA to develop education and outreach tools based on lessons learned from PG&E's prior FLR pilot and identifying new local governments to participate in expanded activities in 2011 and 2012. Upon completion of the KEMA work, several contracts with FLR pilot participants were issued in 2011.

In the fourth quarter of 2012, the FLR Programs had recycled a total of 130,183 bulbs. Throughout the 2012 calendar year, FLR Outreach Programs recycled a grand total of 508,731 bulbs, which is 137% of the cumulative collection goal described below.

Advice Letter 3082-G-A/3598-E-A includes the following metrics for the FLR program for the 2010-2012 program cycle:

Metric 1: Continuing Partners (Santa Cruz, Humboldt and Santa Clara Counties) achieve a 20% increase in bulb collection over 2009 rates.

Cumulatively, the continuing partners exceeded this metric by collecting 353,220 bulbs in 2012 versus 189,902 in 2009, a 93% increase. Individually, Santa Clara County and Santa Cruz County exceeded their 2009 rate but Humboldt's 2012 rate was slightly lower than 2009. In the 2012 4th quarter, Santa Cruz collected 5,175 bulbs for a 2012 total of 20,673, Humboldt collected 5,014 bulbs for a 2012 total of 17,664, and Santa Clara collected 79,130 bulbs for a 2012 total of 314,883.

Metric 2: New Partners (Alameda/StopWaste, Sonoma and Napa Counties) recover at least 20% of bulbs.

Cumulatively, the new partners fell slightly short of their goal, collecting 155,511 bulbs, which is 91% of the cumulative target. Individually, Napa County exceeded the Metric 2 goal of 20% bulb collection, but Sonoma and Alameda/StopWaste did not. Napa County collected 5,995 bulbs in the 4th quarter for a 2012 annual total of 34,922, which is 320% of their annual goal. Sonoma County collected 12,739 bulbs in the 4th quarter for a 2012 annual total of 34,172, which is 89% of their annual goal. Alameda/Stop Waste collected 22,130 bulbs in the 4th quarter for a 2012 annual total of 86,417, which is 71% of their annual goal.

INNOVATOR PILOTS (Local Government Program) – PGE21251)

The Innovator Pilots Program provided competitive funding to local, regional and sub-regional governments leading the effort in energy efficiency and GHG reduction activities through innovative and creative approaches to deliver energy savings. Projects were selected based on the likelihood of being scalable and replicable throughout the service territory.

Approved as of June 1, 2010, in accordance with Advice Letter 3081-G-B/3597-E-B, the first solicitation for Innovator Pilot project proposals resulted in seven projects being selected for the program. Contracts were signed for these seven projects in 2010-2011. Eight more projects were selected through a second solicitation in 2011, for a total of 15 Innovator Pilot projects. Of these 15 projects, three were completed by the end of 2012. The remaining 12 will be completed during the 2013-2014 cycle. The table below provides brief summaries of each of the pilots.

Innovator Pilot Projects

Local Government	Projects	Status
Projects Selected During the 2010 Solicitation Appear Below		
Alameda County Office of Education	The Alameda County Office of Education (ACOE) Leadership in Energy Efficiency Program (LEEP) seeks to develop a new, replicable model for improving energy efficiency in an especially hard-to-reach and financially constrained sector: Public school districts. By providing energy efficiency expertise and management assistance at the office of education level, the LEEP Program leverages internal resources and relationships unique to school districts in order to actualize results. The LEEP energy managers will test their hypothesis in 36 school districts.	Continue through 2013.
City of Chico	The pilot plans to help moderate-income households not eligible for low-income programs but cannot typically afford to install energy savings measures on their own. The pilot will achieve measurable energy savings by bringing their homes into compliance with Chico's Residential Energy Conservation Ordinance (RECO). This pilot has two primary goals: 1) to identify the most cost-effective path of coming into RECO compliance and achieving significant energy savings in moderate-income homes, and 2) to test the impacts of access to different types of energy consumption information (e.g., in-person; telephone, online) on influencing customer behavior. The pilot not only promotes the local green economy by hiring nearby businesses to provide the audits, but also helps our customers achieve significant energy savings in their home.	Continue in 2013.
Sierra Business Council	This project includes three components: 1) establishing an Energy and Climate Leadership (ECL) Institute for the purpose of developing grassroots leadership; 2) providing an Energy Efficiency Training Program (EETP); and, 3) enhancing energy use information and management for small businesses and municipalities using sMeasure. Overarching goal is to demonstrate that climate change, with its expected environmental impacts, also presents regional economic opportunities to respond to the imperative to mitigate those expected impacts by decreasing energy usage. The ECL Institute is designed to develop and support collaborative leadership across key members of Sierra communities for the purpose of driving projects which reduce greenhouse gas emissions in their communities. The EETP component provides a paid training for local contractors to increase the suite of services offered to potential customers to include energy audits, solar plumbing, energy retrofits, and other installations in areas where local capacity is lacking. The third component assesses the success of implementing no-cost energy-monitoring software (sMeasure) aimed at SMBs to determine the extent to which it drives energy efficiency savings through the identification of achievable solutions and lower overall energy costs. This tool uses data from My Energy to analyze a customer's energy usage and compare it to similar users in similar weather zones.	Continue in 2013.

QuEST/Cities of Oakland, Berkeley, and Emeryville	Owners of multi-family properties do not reap a direct financial benefit from energy improvements; and tenants have no equity interest in making investments. In the case of master metered buildings, tenants have little direct benefit to conserve. This project proposes to develop policies and programs that the utility and local governments can use to address this split incentive. Several core approaches will be pursued.	Completed in 2012.
QuEST/Cities of Oakland, Berkeley, and Emeryville	It is more cost-effective to provide commercial customers with a single, comprehensive audit than the current model where direct installation contractors audit only the specific technology that they sell, leaving customers uninformed about all of their options and creating lost opportunities. This will ease customer confusion about which energy savings investments are best for their situation, ultimately leading to increased project implementation and deeper energy savings compared to historical utility funded energy efficiency programs.	Continue in 2013.
Santa Clara County (Silicon Valley Energy Watch)	Pilot expands the ability of municipal housing departments to incorporate Whole House energy efficiency measures into standard rehabilitation work. The City of San Jose Housing Department provides a range of affordable housing programs and services to San Jose residents, including financial and technical assistance. This pilot will provide homeowners with financial assistance in the form of loans and grants to make repairs and improvements to their homes. The program will serve low- and moderate-income, hard to reach residential communities. The pilot coordinates outreach education and energy savings projects across Santa Clara County in order to ensure a maximally comprehensive, innovative, and strategic approach to energy savings.	Continue in 2013.
Santa Clara County (Silicon Valley Energy Watch)	Program is funding 17 public and nonprofit agencies in Santa Clara County with "mini grants" to conduct 18 innovative energy efficiency outreach and education programs with targeted communities. The program supports small, local, and innovative social marketing campaigns designed to achieve significant and lasting behavior changes surrounding energy efficiency in limited, targeted communities. To qualify for funding, projects had to define a specific target population, situate energy efficiency within a broader framework of environmental sustainability, and include tangible incentives for behavior change towards energy efficiency. Funded projects include energy-focused business outreach, an educational television series, youth classroom education, and creation of an energy efficiency module for low income home rehabilitation volunteers.	Completed in 2012.

Projects Selected During the 2011 Solicitation Appear Below		
City of San Francisco	This pilot is studying opportunities for transforming the market so that newer, more efficient refrigeration equipment can provide a more cost-effective option for small and medium business (SMBs). The City will do this by collecting accurate estimates of the energy savings associated with the targeted equipment and show results of how permanent retirement and disposal of inefficient commercial refrigeration from the marketplace may help improve the efficiency of refrigeration programs for SMBs.	To be initiated in 2013.
Mendocino County	The Community Development Commission of Mendocino County is developing a program to assist Public Housing Authorities (PHAs) in facilitating market transformation within their internal operations and in hard to reach communities by embedding energy efficiency practices into its policies and procedures. This pilot program will create a new procurement and purchasing policy for PHAs that incorporates long-term energy savings into cost analyses while aligning with local, state and federal rules and regulations.	Continue in 2013.
Humboldt County	This pilot will test the Redwood Neighborhood Energy Challenge (RNEC) concept, which will engage neighborhoods and individuals to reduce energy consumption on behalf of a local school. To encourage participation and residential energy reductions, the RNEC will utilize concepts from community based social marketing. Regardless of energy saving outcomes, the RNEC will evaluate social marketing based outreach strategies, behavioral change strategies, and the assumption that awareness, knowledge and attitudes towards energy efficiency are associated with energy use.	Continue in 2013.
Santa Clara County	Correctional facilities and campuses are traditionally high consumers of energy and pose special challenges for implementing efficiency and conservation. This category of buildings is often not effectively addressed with efficiency retrofits because there are no comparable benchmarks. Successful results require specialized equipment and changes in operational procedures. To address this particular niche need, Santa Clara County will develop a program to create benchmarking standards specifically for various types of correctional facilities.	Continue in 2013.
Cities of Albany, Benicia, El Cerrito, Moraga, Orinda, Piedmont & San Pablo	This Pilot is focused on increasing energy management activity in small local governments in California. The Program will be implemented by Strategic Energy Innovations (SEI) and will pilot a model partnership of small cities backed by a technical support team composed of AmeriCorps volunteers and a retired energy professional serving as an Encore Fellow. Program aims to determine if Partner Cities can effectively and efficiently identify and implement energy management systems and practices that have been challenging for small cities to set up and maintain.	Completed in 2012.
San Luis Obispo County	This pilot seeks to prove the concept that “group purchasing of energy efficiency” for small and medium businesses is cost-effective. Group purchasing is the collective participation in a regional account of products and services by a group of independent facilities; in this case, SMBs. By pooling the buying power of more than one facility, SMBs can save time and resources obtaining and implementing products that reduce their energy costs while improving facility quality.	Continue in 2013.
Napa County	To realize long-term impacts from physical improvements requires changes in behaviors of the people using those systems. The capacity to make those changes varies from organization to organization. This pilot will develop, test, and evaluate strategies to educate building maintenance staff and occupants about systems, procedures and day-to-day behaviors that will improve energy efficiency, assure comfort, reduce operating costs and reduce GHG emissions.	Continue in 2013.
Alameda County (StopWaste.org)	By enacting the transparency of energy performance for existing single family, multifamily and commercial buildings, energy asset ratings help buyers and renters take energy efficiency into account when making housing decisions. As such, transparency may also stimulate building owners to improve the energy efficiency of existing buildings, assuming higher property values if energy improvements are capitalized in building prices.	Continue in 2013.

The map below shows the areas where the 15 projects are being implemented by PG&E's local government or non-profit partners.